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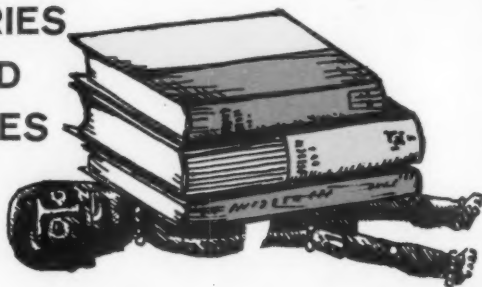
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NEW COUNTRIES AND OLD CULTURES



THE MASS DEBUT of new countries on the world political stage in the past few years has heightened interest in the cultural changes that have occurred in these former colonies as a result of contact with European culture.

Study of the process of cultural transfer, or acculturation, has been most commonly approached either in terms of personality variables isolable in individuals or in terms of areas of cultural behavior most susceptible to outside influences, most resistant to change or most important in causing changes in other areas.

According to Abraham Rosman, of the Department of Economics, Sociology and Anthropology of Vassar College, "such formulations are simplistic in that they omit particularly crucial variables in the culture contact situation."

In a paper, presented to The Academy's Division of Anthropology, on the acculturation of the Kanuri of Bornu Province, Nigeria, to European culture, he cites Raymond Firth's view that "we must look to analysis of social organization to help in the understanding of social change."

Based on a study in the field, the paper attempts to integrate "some of the concepts of social anthropology within the larger conceptual framework of culture" and thereby "provide an added dimension to the study of acculturation."

Bornu, until recently, was under British rule. The Kanuri are a commercial people and internal trade is well developed. A wide range of handicrafts is practiced. All large communities have a class

of Koranic scholars. However, graduates of the educational system set up by the British teach in all schools and are as highly esteemed as the Koranic scholars. Other graduates hold agricultural, civic and professional jobs.

For the study, 44 individuals in eight social groups were selected: political aristocracy, bureaucratic retainers, Koranic scholars, professionals, traders, craftsmen, commoners and members of the low-status class (butcher, drummer and praise-singer, tanner).

In a questionnaire-interview they were asked 14 questions. The first 12 included such queries as: Would you rather own a horse or bicycle? Do you smoke cigarettes? Would you wear European-style trousers? Would you go to a European doctor? Would you marry a non-Kanuri woman? Would you marry a Kanuri woman who had schooling and spoke English? Would you let your wife work as dispenser or school teacher?

Question 13 asked whether a Kanuri practitioner or a European doctor knew more about setting bones, treating jaundice, treating snake bite, headache, small pox and internal pains.

Question 14 was: "Would you marry a Fulani woman? A Hausa woman? A Moslem Babur woman? A Moslem Yoruba woman?"

A "yes" answer to the first 12 and to number 14 got a rating of acculturated; a "no," unacculturated. A reply to number 13 that European knowledge was superior was rated acculturated; superiority for Kanuri knowledge, unacculturated.

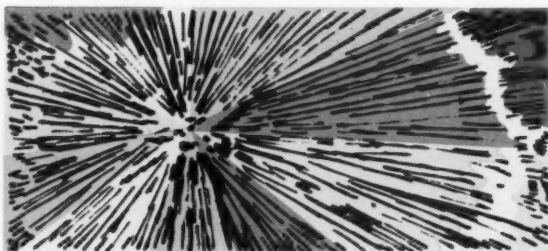
On the basis of replies to the first 12 questions the political aristocracy was rated as highly acculturated compared with the commoners and bureaucratic retainers. But on question 13 the aristocracy was rated very unacculturated; retainers very acculturated; commoners, in between the two. The traders, moderately acculturated on the first 12, were markedly unacculturated on question 14.

The political aristocracy unanimously backed Kanuri practitioners in treating smallpox. The reason, says Rosman, is that supradistrict political authorities sponsor and carry out smallpox treatment, and the local political aristocracy "will not place its faith in a type of medical treatment administered by a superior authority."

Traders were rated acculturated in material culture, attitude toward treatment of disease, and marrying educated women; unacculturated in cigarette smoking, wearing of trousers, letting wives work, and marrying non-Kanuri women. They will, however, marry

Hausa women, and this Rosman attributes to the fact that they come in frequent contact with the Hausa, the important trading group in northern Nigeria. Their other attitudes, he holds, stem from the fact that the traders are a new, wealthy group, with increasing political power, that seeks to increase its prestige and maintain its position by adhering closely to cultural norms in many areas of behavior.

Rosman concludes that the study upholds these hypotheses: Groups in a community vary in their degree of acculturation. They "acculturate in different areas of culture at different rates. These differences are determined by the relation of the groups to the cultural area. Principles governing the relationship of groups. . . will affect the rate and degree of acculturation of groups. This relationship to other groups encourages or inhibits variations from the cultural norms." □ □



THIAMINE AND HEALTH

DURING THE PAST GENERATION, the major diseases due to dietary deficiencies have been largely eliminated in the United States. Although over-processing of foods, depletion of soils, and the use of chemical fertilizers and growth enhancers have brought a decrease in the nutritional value of many foods, secondary chemical treatment — food enrichment — is credited with compensating the deficiencies due to natural causes and those due to social artifacts.

At present about half of the states have seen fit to protect native populations from their own selective eating habits and any diminution of dietary values in processed foods by enacting legislation establishing basic nutritional requirements for many foodstuffs.

Thiamine (vitamin B₁) is one of the essential components of

health that the body can neither synthesize nor store for a significant period of time. The most common disease attributable to acute thiamine deficiency is beriberi, which is rarely found in the United States. Less severe shortages of thiamine in the diet are responsible for neurophysiologic disturbances such as neuritis, cramps and paralyses. These are still quite common in the United States, despite the quantities of thiamine-rich foods consumed. These anomalous deficiencies may be caused in part by the concurrent high intake of certain shell fish, plants, and animal feeds that contain thiamin-destroying enzymes (thiaminases).

Individuals suffering from thiamine deficiency require prompt treatment to prevent progressive and irreversible tissue damage. Thiamine is essential to the functioning of the peripheral nerves, and it has been observed that excitation of these nerves stimulates the release of minute quantities of the substance into the neural system and into the heart. Thiamine therapy has proved useful in a variety of disease states — cardiovascular disorders, skin disease, diabetic coma, and multiple sclerosis.

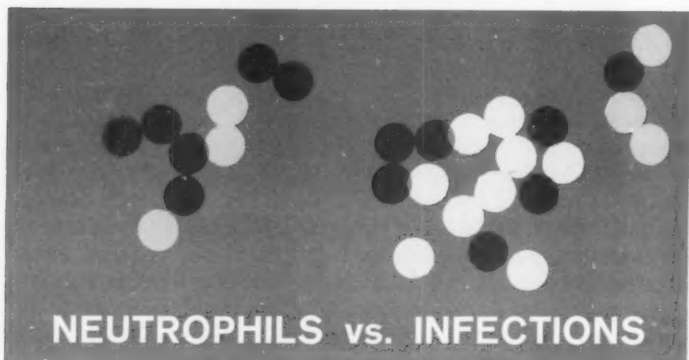
Vitamins, including thiamine, appear to be chemical catalysts. ATP (adenosine triphosphate, the energizer) is believed to transform thiamine into the ester TPP (thiamine pyrophosphate; cocarboxylase), which operates as a decarboxylating coenzyme in a number of enzyme systems — those known as pyruvic, glycolic, transketolase, etc. Decarboxylation is the removal of the carboxyl radical ($-\text{COOH}$) from an organic molecule. At The Academy's Conference on Unsolved Problems of Thiamine, Dr. Alexander von Muralt took note that thiamine probably functions in two ways: in metabolism as TPP, and in neural reactions without serving as a decarboxylator. Some of the neuromuscular effects of thiamine deficiency may follow from low TPP, insufficient coenzymic aid, faulty (transketolase) enzymic action on carbohydrates, and therefore inadequate formation of energy and anabolic sugars. In thiamine deficiency in man, there is a sharp distinction between biochemical aberration at the cellular level and clinically manifest disease. The cellular dysfunction probably precedes the clinical state. Nevertheless, a systemic effect is always involved.

Doctor Helen C. Oldham told the conference that it had been found that older women have a higher thiamine requirement than younger women. In an experiment with one group of women aged

52 to 75 years, and another group aged 19 to 21 years, all subjects consumed the same quantity of thiamine, but the older women excreted less of the substance than did the younger. Moreover, when both groups were deprived of sufficient thiamine, the older women showed adverse effects much more quickly. So far, the significance of this finding is not known.

Severe thiamine deficiency in the form of beriberi was probably known in antiquity. Not until 1911, however, was it finally demonstrated scientifically that the husks of grains contain the precious vitamin. The pure substance was isolated first in 1926; its chemical structure was determined and the vitamin was synthesized ten years later.

Authorities now believe that there are two major routes toward correcting large-scale primary thiamine deficiency problems (that is, those not resulting from metabolic defect): world-wide achievement of optimal and not merely minimum nutritional standards, and the enactment of legislation to vitaminize deficient foods and eliminate over-processing of the thiamine-bearing essential grains. □ □



STUDIES OF THE FACTORS that stimulate or retard speedy mobilization of polymorphonuclear neutrophilic leukocytes may provide increasingly important information on the ability of organisms to combat infection.

For years it was believed that local neutrophilia could be induced in laboratory animals by the injection of almost anything. In a recent paper presented at a meeting of The Academy's Section of Biological and Medical Sciences by George J. Fruhman of the Department of

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Anatomy of Albert Einstein College of Medicine, it was shown that the only potent substances that elicited such reaction were bacteria or bacterial derivatives.

While the role of bacterial endotoxins in producing fever has been under thorough investigation, major emphasis in past studies has been on the mechanism of fever production, not on the leukocytosis that occurs after the appearance of leukopenia.

The Fruhman experiments sought more information concerning the ability of laboratory animals to mobilize large numbers of neutrophils. The method used was to inject various substances in solution into the peritoneal cavity of laboratory animals, washing out the cavity and determining the numbers and types of cells in the peritoneal fluid by application of hemacytometric and staining techniques.

Injections of salt solutions 0.9 per cent NaCl, prepared in singly distilled water with no special precautions taken for purity or sterility, produced strong neutrophilia. Daily peritoneal lavage brought a changing pattern in the types and numbers of cells collected from the peritoneal fluid. Bone marrow tests showed no signs of neutrophil or eosinophil depletion and it was thought this might indicate a tolerance had developed toward the injections. When further experiments revealed a lack of uniform response it was decided to use solutions of known purity to obtain a true evaluation of results.

Use of fresh, sterile, nonpyrogenic salt solutions under the most stringent sterilization procedures failed to evoke a peritoneal neutrophilia up to 70 hours after injection. Such substances as D-glucose, glycogen, heparin sodium, histamine phosphate and a sterile nonpyrogenic solution of amino acid also failed to produce results when injected intraperitoneally.

Injections containing bacterial extracts produced quite a different result. A solution of nonpyrogenic saline to which was added Piro-men, a lipopolysaccharide derived from *Pseudomonas*, produced a rapid onset of peritoneal fluid neutrophilia, which reached a peak at five hours. The influx of neutrophils was greater than that induced by injections of ordinary saline. The peak was maintained for 15 hours, after which the number of neutrophils declined sharply, accompanied by morphologic evidence of neutrophil degeneration and phagocytosis of the remains of macrophages.

Increased doses of Piromen, up to 0.316 micrograms, resulted in greater numbers of neutrophils in the peritoneal fluid. When still higher doses of Piromen were used, however, the number of neutrophils declined markedly.

Indication that the neutrophils found in the interperitoneal cavity were recruited from bone marrow was the discovery that five hours after injection of one microgram of Piromen there was a marked depletion in the number of mature neutrophils in the bone marrow.

Experiments are now being carried out to determine the ability of certain agents to inhibit neutrophil mobilization. It was found that one injection containing colchicine will achieve this effect. On the other hand, relatively large doses of cortisol were required to elicit an inhibitory response, although the degree of inhibition was not marked. Other inhibiting agents include hemorrhage and large doses of bacterial endotoxins.

Because of the importance of the ability to mobilize neutrophils under a variety of conditions, continued investigations in this area are necessary to develop needed information. ☐ ☐

CRACKS IN THE "CRACKER" CULTURE



A SLOW, STEADY, UNRELENTING PRESSURE — economic, legal and social — is being applied to the Southern states in an attempt to alter certain of the mores of the region. But the South is not a homogeneous sociocultural structure; it is to be expected that the forms of reaction to pressure will vary from section to section, with differing results in each.

Mozell C. Hill, in a paper delivered before The Academy's Division of Anthropology, divided the South into four major subdivisions, each with its own distinct culture. The Lowland Atlantic and Gulf Coastal Plains is where slavery had its strongest hold. The vestiges of the plantation-feudal system are maintained by the most powerful social and economic forces. This region includes the "Black Belt" of the Mississippi Valley.

The Appalachian Hill and Mountain Country is the domain of the Scotch-Irish — socially conservative, politically liberal, strongly Presbyterian. Slavery was always weak, and the problems are different from those of the other regions.

The Piney Woods — the Cracker Country — was in the early days referred to as the "Pine Barrens." In the area made famous in literature by Erskine Caldwell, Marjorie Kinnan Rawlings and Caroline Miller, the technology is static and the Negro population relatively small. The winters are mild, the summers hot and humid, and the soil is red clay. The rivers run East to the sea, and between them the land is infertile, inhospitable and discouraging.

The people call themselves "crackers" and are so referred to by their neighbors. The tales have it that they are called this because they formerly cracked their corn between flat rocks; or, perhaps, because they liked to crack their whips, according to one story; or because one old meaning of the word is "bomb," and the people were notorious for possessing explosive temperaments.

Gorgia Town and Cracker County are the fictitious names of the real areas that Dr. Hill assigned to the subject of his study. Until 1830, the county seat was wherever the judge of the travelling court hung his hat. In that year, however, Gorgia Town became the permanent seat, and fifty years later it had grown to include a courthouse, a hotel, a jail, a general store, and six residences. It was a trading center for the area, and since then it has grown, slowly, unevenly, but steadily.

Government activity and mechanization have tended to increase the size of the farms and decrease the number of workers needed, and the single-family farms grow less self-sufficient, less an economic unit, and more obsolete. The lands were better in the West, and so

the region was outside the mainstream of migration. The area was isolated culturally and geographically.

As the family was the basic economic unit, it grew also to be the basic social unit. Kinship groups and family sentiment are still the core of social organization. "Cousin" is anyone closely related, distantly related, or simply bearing the same surname. A man might admit to several thousand relatives in one county. The person who wishes to move socially or economically will adopt the technique of claiming kin. "In fact, extended kinship ties are very useful to politicians for uniting a series of presumably related persons into effective political action groups."

Religiously, the Protestantism is of the fundamental variety; the sacred writings are "assumed to embody all wisdom and knowledge necessary for the proper ordering of man's behavior." The congregation is the unit of worship, and it assumes the role of a large family group. In church, and frequently out of it, comembers are "brother" and "sister." The religious unit "has two holy possessions—the church edifice and the Bible. The Bible serves to provide moral sanction for the norms of the culture. Such life conditions as sex roles, family stability, filial respect and obedience, child discipline, and white supremacy are supported by divine law as interpreted in the church by the minister and his congregation."

The children in this culture are taught blind obedience — both to the family and its extension, the entire culture. The parents are stern, but affectionate; "they are nonpermissive, constraining, yet consistent." The results "are manifested in the child's apparent inability to act with initiative or to engage in introspective and reflective thinking about his parents' behavior." If the culture does not dictate a response to a crisis, "the individual seems to be at a loss . . ." The parental generation still looks for guidance and emotional support to the grandparents, and children are subject to the authority of both groups. This authority even extends to other adults of the community, and may be "the psychogenesis and sociogenesis of the crowd-mindedness of Crackers . . ."

Negroes in Crackerland have always been a minority, dispersed among the white population. The values of the whites have, in the course of time, become the values of the Negroes. "Custom requires a Negro to have a white sponsor who will relate him to the white

community. Both concrete services such as cooking, housekeeping, and baby sitting, and evidences of respect, obedience and deference are expected as expressions of gratitude for this sponsorship. Correspondingly, Negroes who maintain economic relationships with whites expect sponsorship as part of the 'contract.' Even Negroes in the professions and business must make every effort to establish themselves with a white protector. However, the cultural emphasis is upon the informal and personal content of the Negro-white relationship."

If, in the "Black Belt" of the Mississippi Valley, group violence is "a means of social control of [the] slave and peonage labor by a small white minority," it is different in Crackerland. Here, "Mob violence is more often a social occasion, a ceremonial event, in which sentiments about, and attitudes toward, the subordinate outgroup are expressed and taught . . . There is usually a shared community feeling, a consensus as it were, involved in the 'lynch situation.' So long as there is a scapegoat available, the actual victim is of little importance. Violence in the area may be viewed, not only as an enforcement of caste regulations, but as an expression and reinforcement of community values."

But Crackerland is not entirely what it was, and will not long be what it is. ". . . The folklike, static rigidity of the culture is breaking up and disintegrating under the impact of technology, urbanization, migration, and mass communication." A planter and business class is developing, and cash crops and marketing efficiency are replacing the subsistence economy. The paternalistic landlord-tenant, sponsor-client relationships are being modified by a money economy. The fundamental Protestantism sees Catholic parishes and Jewish synagogues growing up. New ideologies are altering the images and sensitivities of the people.

In one respect, these changes widen the distance between the Negroes and whites in the area. This, however, "appears to be only of a transitory nature, while the two groups work out new accommodational relationships. At least . . . voluntary associations . . . and other pressure groups must now operate overtly, out in the open, and offer better than superficial solutions to the requirements and expectational demands of a society that is incipiently beginning to throw-off its traditional cultural patterns." ☐ ☐



MAN'S AIR CONDITIONING MECHANISM

BREATHING IS A NATURAL FUNCTION with which most humans are not generally preoccupied. The continuous performance of the respiratory mechanism is unnoticed because it is so efficient. Even in extremely cold environment the system works so well the normal person experiences no respiratory difficulties.

A. R. Moritz and J. R. Weisiger have shown that air at -100°C inhaled through the mouth is warmed to within 1° or 2° of body temperature by the time it reaches the tracheal division.

In normal breathing air is warmed in the nasal passages and some of the impurities are filtered out by the fine hairs and mucus secretion in the nostrils. By the time it reaches the trachea and bronchi, the air is warmed to body temperature and humidified, thereby aiding in the efficiency of the ciliary action which helps move nasal secretions to the nostrils and propels mucus and waste material from the trachea and large bronchioles toward the pharynx. Cold air would depress ciliary action and increase the viscosity of the mucus.

In cases of sudden exertion, inability of cold air to hold sufficient water vapor may cause discomfort; hyperventilation through the mouth may dry out the normal mucus layer in the upper air passages.

In so far as the chronic respiratory patient is concerned, sudden exertion is not the only cause of respiratory embarrassment. Walking in the open air on a very cold day, for example, can bring wheezing, dyspnea or tightness in the chest to most such persons, probably because of a sharp change in the airflow characteristics of the trachobronchial tree.

No studies have been reported on the heating and humidification processes in the airways of subjects with respiratory tract disease, but a report by Doctors Roe E. Wells, Jr., James E. C. Walker and Roger B. Hickler in *The New England Journal of Medicine* appraises the effects of cold on the respiratory conditions.

Among the subjects studied by the three investigators were patients with a past history of intolerance to cold; some tolerant of cold; and persons of normal health. The effects of cold air inhalation and cold air exposure were studied separately and in combination. These were some of the results noted:

Normal subjects and patients without histories of cold intolerance showed no significant changes in airflow resistance during cold-air breathing; those patients who had respiratory difficulty in a cold environment underwent marked changes in airflow resistance during room-air or cold-air inhalation; "cold-air inhalation *per se*" appeared to be "the inciting factor in the development of symptoms."

Airflow resistance depends on both airflow rate and the degree of inflation of the lungs. Since the study was conducted under conditions in which the degree of lung inflation was unchanged, the measurements of airflow resistance could not be regarded as synonymous with "changes in the caliber of the airways."

According to the investigators, the study is believed to indicate an "approximation of changes in the caliber of the airway." If this assumption were correct, "the reaction to cold-air breathing might be considered to involve some mechanism whereby the bronchi narrow in response to a cold stimulus."

It was not established that the caliber changes were dynamic, since they might occur "from a sudden increase in bronchial secretions or membrane edema." And since the changes noted in the study were rapid in onset and, after therapy, rapid in subsiding it was believed a muscular or neuromuscular response might be involved. In normal subjects the major bronchi and the smaller bronchioles are probably never subjected to a cold stimulus during quiet breathing since the respiratory apparatus can heat extremely cold air to body temperature and humidify it to full saturation by the time it passes the larynx.

In patients with respiratory diseases, it is believed that defective heating, humidifying and filtration processes in the upper airways are at fault. Conditioning of cold air in the lower reaches of the airways permits lower temperatures to develop in the smaller bronchioles, thereby narrowing the airways and decreasing flow and volume. The drying and dehydrating effect of cold air acts as an additional irritant to the bronchi and increases the viscosity of bronchial mucus which, in turn, narrows the airways still further. □ □

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